

REMARKS

Claims 1-13 and 16 are now pending in the application. By this paper, Claims 1, 6, 10-13, and 16 have been amended and Claims 14-15 and 17-22 have been cancelled without prejudice or disclaimer of the subject matter contained therein. The basis for these amendments can be found throughout the specification, claims, and drawings originally filed. No new matter has been added. The preceding amendments and the following remarks are believed to be fully responsive to the outstanding Office Action and are believed to place the application in condition for allowance. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 102

Claims 1-3, 6, 7, 9, 14 and 15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Byun (U.S. Pat. No. 6,736,306).

Claims 1, 5 and 10-12 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Shen (U.S. Pat. No. 6,774,473).

These rejections are respectfully traversed.

At the outset, Applicant respectfully submits that this rejection is moot with respect to Claims 14-15 as Claims 14-15 have been cancelled without prejudice. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Each of independent Claims 1 and 6 calls for a semiconductor device including a first semiconductor package including a first curved substrate defining a first concave surface and a first convex surface and a second semiconductor package including a

second curved substrate defining a second concave surface and a second convex surface. The first semiconductor package is positioned relative to the second semiconductor package such that the first convex surface opposes the second convex surface and is attached thereto by a series of protruding electrodes. A first semiconductor chip is positioned between the first convex surface of the first curved substrate and the second convex surface of the second curved substrate and is flip-chip mounted to the first convex surface of the first curved substrate.

Similarly, independent Claims 12 and 13 each call for an electronic device including a first curved substrate defining a first convex surface and a first concave surface and a second curved substrate defining a second convex surface and a second concave surface. The first curved substrate is positioned relative to the second curved substrate such that the first convex surface is opposed to the second convex surface. A first electronic component is flip-chip mounted on the first convex surface of the first curved substrate while a second electronic component is mounted on the second concave surface of the second curved substrate.

Byun and Shen each fail to teach a first semiconductor package including a first curved substrate defining a first concave surface and a first convex surface and a second semiconductor package including a second curved substrate defining a second concave surface and a second convex surface. Rather, Byun teaches first and second semiconductor packages (120, 150) having first joining points (124, 170B), and second joining points (154, 180B). See Byun at Figure 6. However, Byun fails to teach a first semiconductor package mounted above a second semiconductor package, whereby each of the first and second semiconductor packages includes a curved substrate

defining a convex surface and a concave surface. As can be seen from Figure 6 of Byun, the first semiconductor package (120) includes a generally straight substrate while the second semiconductor package (150) similarly includes a straight substrate. Therefore, Applicant respectfully submits that Byun fails to teach first and second semiconductor packages having curved substrates defining convex and concave surfaces.

Shen teaches semiconductor chip modules that are capable of being stacked on top of one another including a chip-mounting member (1), two semiconductor chips (2), and a plurality of solder balls (3). See Shen at Col. 2, Lines 61-65 and Figure 5. Applicant notes that while Shen may teach first and second semiconductor packages each including first and second chip-mounting members (i.e., substrates), Shen fails to teach first and second semiconductor packages each having a curved substrate defining concave and convex surfaces. Rather, as can be seen from Figure 5 of Shen, the substrates are generally straight and define two planar surfaces, rather than a concave surface and a convex surface. Therefore, Applicant respectfully submits that Shen fails to teach each and every element of the present invention.

Because Byun and Shen fail to teach first and second semiconductor packages including first and second curved substrates defining concave and convex surfaces, Applicant respectfully submits that Byun and Shen fail to teach each and every element of the present invention. Accordingly, Applicant respectfully submits that independent Claims 1, 6 and 12, as well as Claims 2, 3, 5, 7, and 9-11, respectfully dependent therefrom, are in condition for allowance. Therefore, reconsideration and withdrawal of the rejection is respectfully requested.

REJECTION UNDER 35 U.S.C. § 103

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Shen (U.S. Pat. No. 6,774,473) as applied to claim 1 above, and further in view of Chandran (U.S. Pat. No. 6,750,549).

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Byun (U.S. Pat. No. 6,736,306) as applied to claim 7 above, and further in view of Hamaguchi (U.S. Pat. No. 6,633,078).

Claims 13 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shen (U.S. Pat. No. 6,774,473) in view of Hamaguchi (U.S. Pat. No. 6,633,078).

These rejections are respectfully traversed.

Independent Claims 1 and 6 are believed to be in condition for allowance in light of the remarks contained above. Because Claims 4 and 8 respectively depend from independent Claims 1 and 6, dependant Claims 4 and 8 should similarly be in a condition for allowance for at least the same reasons. Therefore, reconsideration and withdrawal of the rejection is respectfully requested.

Applicant notes that independent Claim 13 has been amended to call for an electronic device including a first curved substrate defining a first convex surface and a first concave surface and a second curved substrate defining a second convex surface and a second concave surface. The first curved substrate is positioned relative to the second curved substrate such that the first convex surface opposes the second convex surface. A first electronic component is flip-chip mounted on the first convex surface of the first curved substrate while a second electronic component is mounted on the second concave surface of the second curved substrate.

As described above with respect to the rejections under 35 U.S.C. 102(b), Byun and Shen fail to teach first and second curved substrates defining convex and concave surfaces. Rather, as outlined above, Byun and Shen teach first and second substrates that are generally planar and include straight top and bottom surfaces.

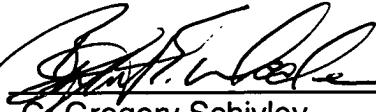
Because Byun and Shen fail to teach first and second curved substrates each defining a convex surface and a concave surface, and none of the cited references cures this deficiency on Byun and Shen, Applicant's invention is not taught or suggested by the prior art and reconsideration and withdrawal of the rejection is respectfully requested.

In this manner, it is believed that independent Claim 13, as well as Claim 16, dependent therefrom, are in condition for allowance in light of the art of record. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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